Translation

PCT/JP2003/016600

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference W1359-00	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/JP2003/016600	International filing date (*day/month/year*) 24 December 2003 (24.12.2003)	Priority date (*day/month/year*) 24 December 2002 (24.12.2002)
International Patent Classification (IPC) or national classification and IPC C12N 15/09, C07K 14/47, 14/75, 14/775, G01N 27/62, 27/64, 33/53		
Applicant NITTO BOSEKI CO., LTD.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

   a. ☒ *(sent to the applicant and to the International Bureau)* a total of 3 sheets, as follows:

      ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

   b. ☒ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) DISC 1, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

   ☒ Box No. I Basis of the report
   ☐ Box No. II Priority
   ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   ☒ Box No. IV Lack of unity of invention
   ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   ☐ Box No. VI Certain documents cited
   ☐ Box No. VII Certain defects in the international application
   ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand 28 April 2004 (28.04.2004)	Date of completion of this report 07 October 2004 (07.10.2004)
Name and mailing address of the IPEA/JP Facsimile No.	Authorized officer Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/JP2003/016600

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language _____, which is language of a translation furnished for the purpose of:

☐ international search (under Rules 12.3 and 23.1(b))

☐ publication of the international application (under Rule 12.4)

☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☐ The international application as originally filed/furnished

☒ the description:

pages 1-24, as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☒ the claims:

pages 2, 3, 6-17, 19, as originally filed/furnished

pages* _____, as amended (together with any statement) under Article 19

pages* 1, 5, 18, 20, 21 received by this Authority on 27 September 2004 (27.09.2004)

pages* _____ received by this Authority on _____

☒ the drawings:

pages 1-8, as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☒ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☒ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☒ the claims, Nos. 4

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to sequence listing *(specify)*: _____

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/JP03/16600

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application.

☒ claims Nos. 7-16

because:

☒ the said international application, or the said claims Nos. 7-16 relate to the following subject matter which does not require an international preliminary examination *(specify)*:

The inventions of claims 7-16 concern a method of diagnosis of the human body.

☐ the description, claims or drawings *(indicate particular elements below)* or said claims Nos. _____ are so unclear that no meaningful opinion could be formed *(specify)*:

☐ the claims, or said claims Nos. _____ are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for said claims Nos. 7-16.

☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:

the written form
- ☐ has not been furnished
- ☐ does not comply with the standard

the computer readable form
- ☐ has not been furnished
- ☐ does not comply with the standard

☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.

☐ see Supplemental Box for further details.

Box No. IV Lack of unity of invention

1. ☐ In response to the invitation to restrict or pay additional fees the applicant has:

   ☐ restricted the claims.

   ☒ paid additional fees.

   ☐ paid additional fees under protest.

   ☐ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

   ☐ complied with.

   ☒ not complied with for the following reasons:

The inventions of claims 1-6 and 17-21 include 3 groups of inventions concerning a marker protein used in the diagnosis of liver disease comprising a 5.9 kDa protein, a marker protein used in the diagnosis of liver disease comprising a 7.8 kDa protein, and a marker protein used in the diagnosis of liver disease comprising apolipoprotein AI. This examination finds that a common chemical structure does not exist among the above three proteins, and the technical feature shared by all three is the fact that they are markers used for the diagnosis of liver disease.

However, as described in Gastroenterology 1991, Vol. 100, No. 5, (Pt. 1) pages 1397-1402, markers per se for the diagnosis of liver disease were widely known before the priority date of this application. Therefore, this examination finds that the above three proteins do not share a special technical feature, and these groups of inventions are not so linked as to form a single general inventive concept.

4. Consequently, this report has been established in respect of the following parts of the international application:

   ☒ all parts.

   ☐ the parts relating to claims Nos. _____ .

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-3, 5, 6, 17-21	YES
	Claims		NO
Inventive step (IS)	Claims	1-3, 5, 6, 17, 18	YES
	Claims	19-21	NO
Industrial applicability (IA)	Claims	1-3, 5, 6, 17-21	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Document 1: WO 01/86304 A2 (BAYER AKTIENGESELLSCHAFT) November 15, 2001 & EP 1150123 A1 & EP 1283989 A2 & JP 2003-532899 A
Document 2: Gastroenterology 1991, Vol. 100, No. 5, (Pt. 1) pages 1397-1402
Document 3: JP 63-237795 A (Otsuka Pharmaceutical Factory, Inc.) October 4, 1988

Claims 19-21

Based on the descriptions in documents 1 and 2 cited in the international search report, the inventions of claims 19-21 lack an inventive step.

Documents 1 and 2 state that apolipoprotein AI is used as a marker for the diagnosis of alcohol-induced liver disease. The use of an antibody to detect a protein marker is obvious.

Claims 1-3, 5, 6, 17, and 18

The inventions of claims 1-3, 5, 6, 17 and 18 are novel and involve an inventive step with respect to the documents cited in the international search report.

Documents 1 and 2 state that apolipoprotein AI is used as a marker for the diagnosis of alcohol-induced liver disease, and document 3 describes human apolipoprotein A-II (77 amino acids) that contains SEQ ID NO: 2 of this application (68 amino acids).

However, none of the documents describes the use of the α-E chain of human fibrinogen and apolipoprotein AII as markers used for the diagnosis of liver disease, and they do not describe the use of the proteins identified as SEQ ID NOS: 1 and 2 of this application as markers for the diagnosis of liver disease.

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Supplemental Box Relating to Sequence Listing

Continuation of Box No. 1, item 2:

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this report was established on the basis that of:

   a. type of material

   ☒ a sequence listing

   ☐ table(s) related to the sequence listing

   b. format of material

   ☐ in written format

   ☒ in computer readable form

   c. time of filing/furnishing

   ☐ contained in the international application as filed

   ☒ filed together with the international application in computer readable form

   ☐ furnished subsequently to this Authority for the purpose of search and/or examination

   ☐ received by this Authority as an amendment* on _____

2. ☒ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments:

** If item 4 in Box No. I applies, the listing and /or table(s) related thereto, which form part of the basis of the report, may be marked "superseded".*